

Amendments to and Listing of the Claims:

1. (Currently Amended) A method of separating dimethyl ether from an olefin stream made from an oxygenate to olefin reaction process, comprising:
contacting oxygenate with a molecular sieve catalyst to form the olefin stream, wherein the olefin stream comprises water, propylene, propane, and dimethyl ether;
drying the olefin stream; and
distilling the dried olefin stream to separate the dimethyl ether and propane as a bottoms from the propylene.
2. (Original) The method of claim 1, wherein the dried olefin stream contains not greater than 1,000 wppm water.
3. (Original) The method of claim 2, wherein the dried olefin stream contains not greater than 500 wppm water.
4. (Original) The method of claim 3, wherein the dried olefin stream contains not greater than 10 wppm water.
5. (Original) The method of claim 1, wherein the propylene distilled from the dried olefin stream is substantially free of dimethyl ether.
6. (Original) The method of claim 1, wherein the propylene distilled from the dried olefin stream contains not greater than 25 wppm dimethyl ether.
7. (Original) The method of claim 6, wherein the propylene distilled from the dried olefin stream contains not greater than 10 wppm dimethyl ether.

8. (Original) The method of claim 7, wherein the propylene distilled from the dried olefin stream contains not greater than 1 wppm dimethyl ether.
9. (Original) The method of claim 8, wherein the propylene distilled from the dried olefin stream contains not greater than 0.5 wppm dimethyl ether.
10. (Original) The method of claim 2, wherein the olefin stream contains at least 0.05 wt % dimethyl ether.
11. (Original) The method of claim 1, wherein the olefin stream further comprises butylene and higher boiling point compounds and the dried olefin stream is distilled to separate the dimethyl ether and propane from the propylene, butylene and higher boiling point compounds.
12. (Original) The method of claim 1, further comprising contacting the propane and dimethyl ether with water to separate the dimethyl ether from the propane.
13. (Original) The method of claim 11, further comprising contacting the separated dimethyl ether with a molecular sieve catalyst to form an olefin.
14. (Original) The method of claim 11, wherein the olefin stream comprises from 2 wt % to 45 wt % propane, from 0.05 to 5 wt % dimethyl ether, and from 30 wt % to 95 wt % butylene plus higher boiling point compounds.
15. (Original) The method of claim 1, further comprising polymerizing the separated propylene to form polypropylene.

16. (Original) The method of claim 11, further comprising separating the butylene and higher boiling point compounds from the propylene.
17. (Original) The method of claim 16, further comprising converting the separated butylene into aldehydes, acids, alcohols, esters made from C₅-C₁₃ mono carboxylic acids and C₅-C₁₃ mono alcohols or linear alpha olefins.
18. (Original) The method of claim 1, wherein the olefin stream further comprises ethylene and the dried olefin stream is distilled to separate the dimethyl ether and propane from the ethylene and propylene.
19. (Original) The method of claim 18, further comprising polymerizing the separated ethylene.
20. (Currently Amended) A method of removing dimethyl ether from an olefin stream, comprising:
providing an olefin stream which comprises water, propylene, propane and dimethyl ether; drying the olefin stream;
distilling the dried olefin stream so as to separate out the propane and dimethyl ether as a bottoms from the propylene, wherein the propane and dimethyl ether stream comprises from 4.0 to 99 wt % propane and from 1.0 to 96 wt % dimethyl ether.
21. (Original) The method of claim 20, wherein the provided olefin stream comprises at least 0.05 wt % dimethyl ether.
22. (Original) The method of claim 20, wherein the olefin stream is dried by contacting the olefin stream with water absorbent.

23. (Original) The method of claim 22, wherein the water absorbent is a polar hydrocarbon.
24. (Original) The method of claim 20, wherein the olefin stream is dried by contacting the olefin stream with a water adsorbent.
25. (Original) The method of claim 24, wherein the water adsorbent is a molecular sieve.
26. (Original) The method of claim 22, wherein the provided olefin stream is compressed prior to contacting with water absorbent.
27. (Original) The method of claim 20, further comprising contacting the propane and dimethyl ether stream with water so as to separate the dimethyl ether from the propane.
28. (Original) The method of claim 27, further comprising contacting the separated dimethyl ether with a molecular sieve catalyst to form an olefin.
29. (Original) The method of claim 20, further comprising polymerizing the separated propylene.
30. (Original) The method of claim 20, wherein the olefin stream further comprises ethylene and the dried olefin stream is distilled to separate the dimethyl ether and propane from the ethylene and propylene.
31. (Original) The method of claim 30, further comprising polymerizing the separated ethylene.
- 32.-53. (Cancelled)